AMENDMENTS TO THE SPECIFICATION:

Please replace the paragraph beginning at page 2 line 18, with the following rewritten paragraph:

a1

-- In operation, the RF driving input power applied to the terminals of the amplifier modules 126 is at a frequency that corresponds to that of the desired resonant mode of cavity 110. Under control of the input drive amplifier modules 126 induce a large RF current, with a peak amplitude on the order of several kiloamps, to flow at inner surface 114 of wall 112, so that the desired EM field amplitude is established. Due to skin effect, this current flows along the inside surface of the cavity wall to a depth on the order of few microns. The d.c. power supply output current which passes through the modules flows through the bulk of wall 112. The amplifier modules 126, which are low impedance devices, operate at high-current/low-voltage, while a particle beam generated along an axis of cavity 110 is at high-voltage/low-current, representing a high impedance load. Thus, the RF cavity 110 disclosed serves at once as a power combiner and a matching transformer for the amplifier modules 126. --

Please replace the paragraph beginning at page 5 line 11, with the following rewritten paragraph:

a2

-- According to another aspect of the invention, the ARFCA requires no vacuum and has no complex electrodes, circuits or windows, and therefore, various parts of the structure can be mass-produced by standard ~~CNC~~ Computer Numeric Control (CNC) machines. Additionally, since combining and impedance matching is accomplished with

Amend A2

the cavities, the ARFCA requires no other discrete passive electronic components in its RF circuitry, and as a result, the ARFCA's reliability is increased. --

Please replace the paragraph beginning at page 6 line 11, with the following rewritten paragraph:

A3

-- Referring to the FIG. 2 4a, 4b and 4c, an active radio frequency cavity amplifier (ARFCA) of the present invention is designated by the reference numeral 10. The ARFCA includes two independently tunable resonant cavities 12, 14. The cavities 12, 14 are mated together by a center plate 16 on which a plurality of transistors 18 are mounted. The cavity 12 is coupled to input leads of the plurality of transistors 18, and thus, is referred to as the input cavity. Similarly, the cavity 14 is coupled to output leads of the plurality of transistors 18 and likewise is referred to as the output cavity. --

Please replace the paragraph beginning at page 7 line 22, with the following rewritten paragraph:

A4

-- ~~Each~~ Returning to FIG. 2, each plunger assembly 36 is movable within its respective aperture 34. The plunger assemblies 36 are moved either manually or via threaded screws until the desired resonant frequency is reached. It is contemplated that the amount of movement into the apertures 34 of each plunger assembly 36 is approximately known in advance for the desired operating frequency. --

Please replace the paragraph beginning at page 8 line 7, with the following rewritten paragraph:

-- FIG. 3 is a top plan view of a generic transistor package preferably used for the plurality of transistors 18. The table below identifies, with respect to the particular transistor type, its two leads 18x and 18y, and its mounting flange 18F, which is electrically common to both input and output, and also conducts the heat generated internally by the transistor 18 to the walls of cavities 12, 14 (FIG. 2), which serve as a heat sink. --

Please replace the paragraph beginning at page 8 line 13, with the following rewritten paragraph:

-- In operation, d.c. power is applied to the transistor leads 18x and 18y through a normal wire lead 60a (FIGS. ~~1~~ 2 and 4C) via a conducting rod 62a (FIG. 2). Since the d.c. power is applied to each of the plurality of transistors 18, it is possible to use elements, such as ferrite beads (not shown), in the drain or collector power supply circuit of each transistor 18 to ensure its stable operation. --

Please replace the paragraph beginning at page 8 line 17, with the following rewritten paragraph:

-- Bias voltages applied to each input lead 18x (FIG. 4C) can be adjusted independently to provide a means to deal with the problems caused by the lack of uniformity among the transistors used. The housing 20 and the center plate 16 are at d.c.

ground potential to ensure safety in the operation of the ARFCA 10 as shown in FIG. 2.

~~As shown in~~ FIG. 4C additionally shows a means of maintaining contact ~~, contact is maintained~~ between the conducting rod 62~~a~~ and a respective transistor input lead 18x by pressure exerted on the rod 62~~a~~ by an upper coupling mechanism 55a (FIG. 2) having a screw 64~~a~~, spring 66a, and an insulating section 68~~a~~. It is noted that an upper coupling mechanism 55a (FIG 2) is provided for each of the plurality of transistors 18. If so ~~desire~~ desired, contacts may also be maintained by soldering the rods 62a, 62b to the transistor leads 18x, 18y.